

CLAIMS

- 1 1. A magneto-optical device comprising:
 - 2 a waveguide structure that includes at least one cladding region and core region,
 - 3 wherein said cladding region and core region comprise semiconductor alloy materials,
 - 4 either said at least one cladding region or said core region is doped with ferromagnetic
 - 5 materials so as to increase the magneto-optical activity of said device.
- 1 2. The magneto-optical device of claim 1, wherein said ferromagnetic comprises Fe, Ni,
- 2 Co or fine particles of Fe.
- 1 3. The magneto-optical device of claim 1, wherein said at least one cladding region
- 2 comprises InP.
- 1 4. The magneto-optical device of claim 1, wherein said at least one cladding region
- 2 comprises InP.
- 1 5. The magneto-optical device of claim 1, wherein said core region comprises InGaAsP.
- 1 6. The magneto-optical device of claim 1, wherein said core region comprises InGaAlAs.
- 1 7. A method of forming a magneto-optical device comprising:
 - 2 forming a waveguide structure that includes at least one cladding region and core
 - 3 region, wherein said cladding region and core region comprise semiconductor alloy
 - 4 materials; and
 - 5 doping either said at least one cladding region or said core region with
 - 6 ferromagnetic materials so as to increase the magneto-optical activity of said device.

1 8. The method of claim 7, wherein said ferromagnetic comprises Fe, Ni, Co or fine
2 particles of Fe.

1 9. The method of claim 7, wherein said at least one cladding region comprises InP.

1 10. The method of claim 7, wherein said at least one cladding region comprises InP.

1 11. The method of claim 7, wherein said core region comprises InGaAsP.

1 12. The method of claim 7, wherein said core region comprises InGaAlAs.